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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,516	04/13/2006	Peter Berenbrink	2003P12192WOUS	3915
22116	7590	11/27/2007	EXAMINER	
SIEMENS CORPORATION			KIM, TAE JUN	
INTELLECTUAL PROPERTY DEPARTMENT				
170 WOOD AVENUE SOUTH			ART UNIT	
ISELIN, NJ 08830			PAPER NUMBER	
			3746	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,516

Applicant(s)

BERENBRINK ET AL.

Examiner

Ted Kim

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 04/13/2006.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Urushidani et al (5,281,129). Urushidani et al teach a method for compensating variations in a fuel composition in a gas turbine system having a plurality of burner F1, F2 stages operated in parallel, comprising: adjusting a fuel supply to the burner stages in response to the variations in the fuel composition; splitting the fuel supply between the burner stages; and keeping the fuel supply split between the burner stages at a constant target value during the adjustment of the fuel supply (note that in Fig. 4 that after the fuel changeover, the ratio of F2 appears to bisect the F1+F2 curve, in which the ratio of fuels F1 to F2 between different burner stages will be kept constant regardless of the fluctuation. Alternately, note that in Fig. 10, a very small adjustment in the calorific value will result in the split being constant); wherein the gas turbine system comprises a pilot burner stage F1 and a main burner stage F2 and the fuel supply split between the pilot burner stage and the main burner stage is kept at a constant target value when the fuel supply is adjusted; wherein a plurality of fuel control valves are provided to the

burner stages. As for the stages being a pilot and main, these are indeed inherently such as diffusion and premixed stages. As extrinsic evidence, Iizuka et al teach the central diffusion stage is the pilot stage and radially outer stages are premixed main stages (see col. 1, lines 10+ and col. 9, lines 8-22 and col. 4, lines 7+).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braun et al (2001/0023578) in view of either Urushidani et al (5,281,129) or EP 1331448 and optionally in view of Iizuka et al (4,766,721). Braun et al teach a method for compensating variations in a fuel composition in a gas turbine system having a plurality of burner stages 5, 1 operated in parallel, comprising: adjusting a fuel supply to the burner stages 5, 1 in response to the variations in the fuel composition; splitting the fuel supply via valves 19a, 19b between the burner stages; wherein the gas turbine system comprises a pilot burner 11 stage and a main burner stage 5 and the fuel supply split between the pilot burner stage and the main burner; wherein a plurality of fuel control valves 19a, 19b are provided to the burner stages, wherein a regulator 27 is allocated to the fuel control valves. Braun et al do not teach the fuel supply split between the burner

stages at a constant target value during the adjustment of the fuel supply. Urushidani et al teach (see Fig. 4), that after the fuel changeover, the ratio of F2 appears to bisect the F1+F2 curve, in which the ratio of fuels F1 to F2 between different burner stages will be kept constant regardless of the fluctuation. Alternately, note that in Fig. 10, a very small adjustment in the calorific value will result in the split being constant. EP '448 teach maintaining the desired fuel flow split (page 5, paragraph 1, see Fig. 3) between different burners in a gas turbine combustor. It would have been obvious to one of ordinary skill in the art to maintain the split of fuel constant in response to variations during the adjustment of the fuel supply, as a conventional technique in splitting the fuel. The above prior art inherently are pilot and main burners, as would be known in the art. In order to obviate any doubt, Iizuka et al teach the central diffusion stage is the pilot stage and radially outer stages are premixed main stages (see col. 1, lines 10+ and col. 9, lines 8-22 and col. 4, lines 7+). It would have been obvious to one of ordinary skill in the art to make the central burner the pilot stage the outer stages the main premixed stages, as taught by Iizuka et al, as the conventional practice for these configurations of burners.

5. Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of the art applied above, and further in view of Vandervort (6,082,092). The above prior art teach an analyzer calculating the calorific value of the fuel (see Urushidani et al, 9) on a branch line for a sample flow, an updating unit 10 or 11 adjusting the regulator and control valves based on the calorific value. The above prior art do not teach using a

current Wobbe analysis and using the Wobbe index in the updater unit. Vandervort teaches that the Wobbe number uses the calorific value divided by the square root of the absolute temperature* the specific gravity, see the equation on col. 2. Thus the Wobbe Number is directly proportional to the calorific value and is a better index of determining compatibility of gas turbine fuel systems with different fuels than the calorific value alone (see e.g. col. 1, lines 62+). Vandervort further teaches using a measured Wobbe number with a desired Wobbe number allows reduction of combustor dynamics and damage. The calculated Wobbe number 40 is compared to an expected Wobbe number 44 and the results used in an updating unit 42. It would have been obvious to one of ordinary skill in the art to employ the current Wobbe analysis and using the Wobbe index in the updater unit, as taught by Vandervort, to better determining compatibility of gas turbine fuel systems with different fuels than the calorific value alone and/or to reduce combustor dynamics and damage. As for claim 18, the limitation of a distance between the branching point and the fuel control valves is sufficiently elongated to allow: the analyzer to fully analyze the fuel composition of the sample flow, the computing unit to fully calculate the current Wobbe index. the updating unit to fully adjust the regulator and the fuel control valves before the fuel reaches the fuel control valves is merely a desired result and inherently capable of being met by the modified system. Alternately, this is well within the ordinary skill in the art as a matter of sizing the length of the distance between the branching point and the fuel control valves and/or a simple matter of

allowing the controller to quickly respond to the real Wobbe index. It would have been obvious to one of ordinary skill in the art to size the distance between the branching point and the fuel control valves sufficiently long as an obvious matter of finding the workable ranges in the art and/or as a simple matter of allowing the controller to quickly respond to the real Wobbe index.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax number for the organization where this application is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer, can be reached at 571-272-7118. Alternate inquiries to Technology Center 3700 can be made via 571-272-3700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

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